

DEPARTMENT OF TRANSPORTATION**DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch

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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-001071**Date Inspected:** 11-Dec-2007**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1530**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** See Below**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Tower Fabrication**Summary of Items Observed:**

Caltrans Quality Assurance (QA) Inspector, Mr. Paul Dawson, arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China, for the purpose of monitoring welding and fabrication of the San Francisco / Oakland Bay Bridge (SFOBB) components. The QA Inspector observed the following:

CWI Names: Xu Xian Ping, Shen Xue Jun, Wang Nan

Orthotropic Box Girder (OBG) and Tower Mock Up:

Bay 3:

The QA Inspector observed ZPMC welder Mr. He Yu Mei stencil 48625 is using welding procedure specification WPS-B-T-2132-1 to make flux cored fillet tack welds on OBG side plate 51 stiffener welds SP051-01-004 and -005. The QA Inspector observed a welding current of approximately 265 amps, 29.2 volts and a gas flow of approximately 18 cubic liters per hour. Items observed by the QA Inspector appear to comply with project specifications.

The QA Inspector observed ZPMC welder Mr. Wei Dashuai stencil 51246 is using welding procedure specification WPS-B-T-2132-1 to make flux cored fillet tack welds on OBG side plate 15 stiffener welds SP015-01-004 and -005. The QA Inspector observed a welding current of approximately 300 amps and 28.0 volts and a gas flow of approximately 18 cubic liters per hour. Items observed by the QA Inspector appear to comply

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with project specifications.

The QA Inspector observed ZPMC welder Mr. Sun Tiyu stencil 54459 is using welding procedure specification WPS-B-T-2132-1 to make flux cored fillet tack welds on OBG base plate 002 stiffener welds BP002-01-010 and BP002-01-011. The QA Inspector observed a welding current of approximately 280 amps 28.8 volts and a gas flow of approximately 15 cubic liters per hour. The welding procedure requires a minimum shielding gas flow of 18 cubic liters per hour and the welding shielding gas flow is below this minimum requirement. The QA Inspector informed ZPMC Quality Control / CWI Inspector Mr. Xu Xianping that the shielding gas flow is below the minimum requirements as listed in the WPS and Mr. Xian Ping had Mr. Tiyu stop additional welding until proper shielding gas flow was reestablished. The QA Inspector observed ZPMC personnel replacing the compressed gas cylinder that supplies carbon dioxide (CO₂) gas to the welding machine being used by Mr. Tiyu. Following replacement of the shielding gas cylinder bottle the QA Inspector observed a shielding gas flow of approximately 18 cubic liters per minute.

The QA Inspector observed three ZPMC welders using welding procedure specification WPS-B-T-2132-3 to make flux cored fillet welds on six OBG side plate 77 stiffener welds at the same time. ZPMC has multiple flux cored welding manipulators attached to a movable gantry that runs on a track along the length of the stiffener plates. The QA Inspector observed a welding travel speed of approximately 455 mm per minute. As the welding commences, each of the welders is responsible for two of the flux cored welding heads. All welders are using 1.4 mm diameter E71T-1 rolls of electrodes that have been marked as being installed earlier today. Welder Mr. Li Zhaogian stencil 48810 completed weld SP077-01-023 with a welding current of approximately 305 amps and 29.4 volts and weld SP077-01-024 with a welding current of approximately 300 amps and 28.3 volts. Welder Mr. Xin Meng stencil 53742 completed weld SP077-01-019 with a welding current of approximately 280 amps and 29.1 volts and weld SP077-01-020 with a welding current of approximately 280 amps and 28.0 volts. Welder Mr. Lishu Liang stencil 48801 completed weld SP051-01-015 with a welding current of approximately 300 amps and 28.6 volts and weld SP077-01-016 with a welding current of approximately 290 amps and 27.6 volts. Following completion of the welding the QA Inspector observed QPMC QC CWI Inspector Mr. Shen Xue Jun and other QC personnel performing visual inspections of the completed welds and Mr. Jun marked several locations as needing to have minor weld repairs performed. Items observed by the QA Inspector appear to comply with project specifications.

The QA Inspector observed ZPMC welder Mr. Han Jianshe preparing to use welding procedure WPS-B-P-2112-FCM with shielded metal arc E7018 4.0 mm diameter electrodes to make tack welds on OBG side plate 002 stiffener weld SP002-001-007. Mr. Jianshe showed the QA Inspector his ZPMC welder certification identification card and the QA Inspector observed this card is different that the card that the other ZMPC have displayed. Mr. Jianshe's card id colored red and it does not indicate Mr. Jianshe's welder stencil number. The QA Inspector asked ZPMC Quality Control CWI inspector Mr. Shen Xue Jun if Mr. Jianshe is approved to weld on Caltrans materials and Mr. Jun initially said Mr. Jianshe is not approved by Caltrans and he should not be welding on these materials, and later Mr. Jun said Mr. Jianshe has been approved by Caltrans and his welder stencil number is 66458. The QA Inspector confirmed Mr. Janshe has been approved to weld on Caltrans materials. The QA Inspector observed a welding current of approximately 200 amps. Items observed by the QA Inspector appear to comply with project specifications.

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The QA Inspector observed ZPMC welder Mr. Li Meng Qian stencil 54460 is using welding procedure specification WPS-B-T-2231-B-U2-F to make a flux cored groove weld root pass in OBG side plate 13 weld SP013-01-001. The QA Inspector observed a welding current of approximately 290 amps 28.5 volts a welding travel speed of 300 mm per minute and the base material had been preheated to a minimum of 60 degrees.



Summary of Conversations:

See above for summary of conversations.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

Inspected By:	Dawson,Paul	Quality Assurance Inspector
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Reviewed By:	Cochran,Jim	QA Reviewer
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